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EXAMINER	
WOLDEMARIAM, AKILILU K	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/686,592	WILL ET AL.	
	Examiner	Art Unit	
	Aklilu k. Woldemariam	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *9/12/2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7 and 9-21* is/are rejected.

7)☒ Claim(s) *8* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Response to Amendment

1. Applicant's amendment filed on September 12, 2007 has been entered. Claims 1 and 3 have been amended, and claims 5-21 have been added. Claims 5-21 are still pending with, claims 1, 3, 18 and 20 being an independent.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. **Claims 1-7 and 9-21** are rejected under 35 U.S.C. 103(a) as being unpatentable over Ott et al. hereinafter, Ott (U.S. Patent number 5,754, 674) in view of Moed et al., thereafter Moed (U.S. Patent number 6,363, 162 B1).

Regarding claim 1, Ott discloses **a method comprising (a) receiving a digital image of a document associated with a document type** (see column 2, lines 48-58 and column 5, lines 5-14)**, the digital image including a plurality of black and white pixels arranged in rows** (see column 6, lines 36-38)**; (b) locating at least two predefined portions of the digital image** (see fig.2, 3 and 4); **(c) calculating a an area confidence level for each of the predefined portions of the digital image as a function of a total number of black pixels located in the predefined portion relative to an expected number of black pixels for the predefined portion** (see fig.2 and 3, column 8, lines 46-52 and column 9, lines 22-58)**; (d) calculating a text**

confidence level by as a function of a total number of pixel groups relative to a total number of characters, wherein each pixel group comprises a set of touching black pixels and each character comprises one or more pixel groups (see fig.2 and 3, column 8, lines 46-52 and column 9, lines 30-58).

Moed discloses **(e) calculating an image profile confidence level by identifying the mean number of black pixels per row, the standard deviation of the distribution of black pixels in each row** (see column 5, lines 9-11, 57-62, column 6, lines 15-20 and column 7, lines 34-42)**, as a function of a black pixel distribution and a the black pixel density, and selecting smaller of the standard deviation of black pixels in each row and the black pixel density** (see items 211 and 212, fig.2A, items 221 and 222, fig.2B , item 1102B, fig.11B and column 5, lines 9-11, 57-62, column 6, lines 15-20 and column 7, lines 34-42)**; (f) calculating an overall image confidence level as a function of the area confidence level , the text confidence level and the image profile confidence level (**see items 211 and 212, fig.2A, items 221 and 222, fig.2B and fig.3H and column 6, lines 15-20)**; and (g) storing the digital image as a result of determining that the overall image confidence level is greater than or equal to a threshold value associated with the document type of the image** (See items 103,fig.1 and item 604, fig.6).

It would have been obvious to someone of the ordinary skill in the art at the time when the invention was made to use Moed's standard deviation of black pixels in each row in Ott's receiving digital image of a document associated with a document type

because it will allow to improve the system that automatically and accurately evaluate the quality of the document image, [Moed's, see column 1, lines 65-67].

Regarding claim 2, Moed discloses **the method of claim 1 wherein the document is a bank check and locating the at least two predefined portions of the digital image includes locating the payee line of the check and the legal amount text of the check** (see items 211 and 212, fig.2A, item 601, fig.6 and column 3, lines 54-60).

Regarding claim 3, Ott discloses **a method, comprising (a) receiving a digital image of a document associated with a document type** (see column 2, lines 45-58 and column 5, lines 5-14)**, the digital image including a plurality of black and white pixels arranged in rows** (see column 6, lines 36-38)**.**

Moed discloses **(b) calculating an image profile confidence level as a function of a black pixel distribution and a black pixel density** (see items 211 and 212, fig.2A, items 221 and 222, fig.2B, item 1102B, fig.11B and column 5, lines 9-11, 57-62, column 6, lines 15-20 and column 7, lines 34-42)**, and (c) identifying at least two text fields of the digital image** (see items 212 and 214, fig.2A and items 222 and 224, fig.2B)**; (d) for each of the at least two text fields, calculating a respective field confidence level as a function of the image profile confidence level, a character mass, broken characters, and a line area confidence level** (see items 212 and 214, fig.2A and 224, fig.2B and column 6, lines 15-20) **and ; (e) setting an overall image confidence level to the minimum of at least two field confidence levels** (see column 6, lines 15-20)**; and (f) storing the digital image as a result of**

determining the overall image confidence level is greater than or equal to a threshold value associated with the document type of the image (See items 103,fig.1 and item 604, fig.6 and column 6, lines 15-20).

It would have been obvious to someone of the ordinary skill in the art at the time when the invention was made to use Moed's calculating an image profile confidence level as a function of a black pixel distribution in Ott's receiving digital image of a document associated with a document type because it will allow to improve the system that automatically and accurately evaluate the quality of the document image, [Moed's, see column 1, lines 65-67].

Regarding claim 4, Moed discloses **the method of claim 3 wherein the document is a bank check and the text fields are selected from the group consisting of payee name, legal amount, courtesy amount, date and signature** (see items 211, 221, 212, 222, 213, 214 and 224, fig.2A and 2B, column 3, lines 54-66).

Regarding claim 5, Ott discloses **the method of claim 1, wherein the digital image is a first digital image of the document received from scanning equipment** (see column 2, lines 45-58 and column 5, lines 5-14), **and further comprising, prior to performing step (g) determining that the overall image confidence level is less than the threshold value** (see item 103, fig.1, item 604, fig.6 and column 6, lines 15-20); **receiving a second digital image of the document; replacing the first digital image with the second digital image, wherein the second digital image is treated as the digital image; and repeating steps (b) through (f)** (see column 5, lines 20-40 and column 11, lines 55-64).

Regarding claim 6, Ott discloses **the method of claim 5, wherein the second digital image is a result of one or more of (i) a modification of the document prior to receiving the second digital image** (see column 3, lines 18-30), **(ii) a modification of the scanning equipment, or (iii) a modification to a scanned image prior to receiving** (see column 3, lines 18-30).

Regarding claim 7, Ott discloses **the method of claim 1, wherein calculating the area confidence level comprises dividing the total number of black pixels in the predefined portion by the expected number of black pixels for the predefined portion to produce a quantity** (see column 9, lines 30-58).

Moed discloses **if the quantity is less than or equal to 1, setting the area confidence level equal to the quantity** (see column 5, lines 49-52); **and if the quantity is greater than 1, setting the area confidence level equal to 1** (see column 5, lines 53-56).

It would have been obvious to someone of the ordinary skill in the art at the time when the invention was made to use Moed's if the quantity is less than or equal to 1, setting the area confidence level equal to the quantity in Ott's receiving digital image of a document associated with a document type because it will allow to improve the system that automatically and accurately evaluate the quality of the document image, [Moed's, see column 1, lines 65-67].

Regarding claim 9, Moed discloses **the method of claim 1, wherein calculating the image profile confidence level** (see column 9, lines 22-30) **comprises calculating a standard deviation of the black pixel distribution in each**

row (see column 5, lines 9-11, 57-62, column 6, lines 15-20 and column 7, lines 34-42); **calculating the black pixel density as a ratio of a total number of black pixels in an image area to a total number of pixels in the image area** (see column 6, lines 15-20); **and setting the image profile confidence level equal to the smaller of (i) a function of the standard deviation** (see column 13, lines 19-29) **and (ii) a function of the black pixel density** (see column 7, line 64 to column 8, line 9).

Regarding claim 10, Moed discloses **the method of claim 9, wherein calculating the image profile confidence level** (see column 6, lines 15-20) **further comprises adjusting the standard deviation of the black pixel distribution based on a maximum allowable standard deviation and a minimum allowable standard deviation** (see column 5, lines 42-48 and 57-62); **and adjusting the black pixel density based on a maximum allowable black pixel density and a minimum allowable black pixel density** (see column 7, line 64 to column 8, line 9).

Regarding claim 11,Moed discloses **the method of claim 1, wherein calculating the overall image confidence level** (see column 6, lines 15-20) **comprises setting the overall image confidence level equal to a product of the area confidence level** (see column 6, lines 15-20), **the text confidence level** (see items 212 and 214, fig.2A, items 222 and 224, fig.2A), **and the image profile confidence level** (see column 6, lines 15-20 and column 9, lines 22-30).

Regarding claim 12, Ott discloses **the method of claim 3, wherein the digital image is a first digital image of the document received from scanning equipment** (see column 2, lines 45-58 and column 5, lines 5-14), **and further comprising, prior to**

performing step (f) determining that the overall image confidence level is less than the threshold value (see column 6, lines 15-20); **receiving a second digital image of the document** (see column 2, lines 48-58 and column 5, lines 5-14); **replacing the first digital image with the second digital image, wherein the second digital image is treated as the digital image** (see column 5, lines 20-40 and column 11, lines 55-64); **and repeating steps (b) through (e)** (see column 5, lines 20-40 and column 11, lines 55-64).

Regarding claim 13, Ott discloses **the method of claim 12, wherein the second digital image is a result of one or more of (i) a modification of the document prior to receiving the second digital image** (see column 3, lines 18-30), **(ii) a modification of the scanning equipment** (see column 3, lines 18-30), **or (iii) a modification to a scanned image prior to receiving** (see column 3, lines 18-30).

Rregarding claim 14, Moed discloses **the method of claim 3, wherein calculating the image profile confidence level** (see column 6, lines 15-20) **comprises; calculating a standard deviation of the black pixel distribution in each row** (see column 5, lines 9-11, 57-62, column 6, lines 15-20 and column 7, lines 34-42); **calculating the black pixel density as a ratio of a total number of black pixels in an image area to a total number of pixels in the image area** (see column 6, lines 15-20); **and setting the image profile confidence level equal to the smaller of (i) a function of the standard deviation** (see column 13, lines 19-29) **and (ii) a function of the black pixel density** (see column 7, line 64 to column 9, line 9).

Regarding claim 15, Moed discloses **the method of claim 14, wherein calculating the image profile confidence level** (see column 6, lines 15-20) **further comprises adjusting the standard deviation of the black pixel distribution based on a maximum allowable standard deviation and a minimum allowable standard deviation** (see column 5, lines 42-48 and 57-62); **and adjusting the black pixel density based on a maximum allowable black pixel density and a minimum allowable black pixel density** (see column 7, line 64 to column 8, line 9).

Regarding claim 16, Moed discloses **the method of claim 3, wherein calculating the respective field confidence level** (see column 6, lines 15-20) **comprises initializing the respective field confidence level to the image profile confidence level** (see column 6, lines 15-20); **determining a minimum character mass** (see column 5, line 66 to column 6, line 14)**; for every character in the respective text field, reducing the respective field confidence level if the character mass of the character is greater than the minimum character mass** (see column 5, lines 42-48 and column 5, lines 49-54)**; determining a total number of broken characters in the respective field** (see column 57-64); **reducing the respective field confidence by a proportion of the total number of broken characters to a total number of characters in the text field** (see column 11, lines 11-15 and column 12, lines 5-9); **determining if a line is located in any of the at least two text fields** (see items 212 and 214, fig.2A, items 222 and 224, fig.2A)**; and for each line located** (see column 13, lines 17-24)**; calculating the line area confidence level as a ratio of a total number of black pixels located above each line to an expected number of**

black pixels above the respective line (see column 6, lines 15-20); **and adjusting the respective field confidence level in proportion to a product of the respective field confidence level** (see column 15-20) **and the line area confidence level** (column 6, lines 15-20).

Regarding claim 17, Moed discloses **the method of claim 16, wherein determining the total number of broken characters comprises identifying the number of characters comprising a plurality of pixel groups, wherein a pixel group comprises a set of touching black pixels** (see column 4, lines 20-25 and column 5, lines 57-62).

Rregarding claim 18, Ott discloses **a method, comprising determining that a first overall confidence level of a first digital image of a document associated with a document type is less than a threshold value associated with the document type** (see column 2, lines 48-58, column 5, lines 5-14 and column 6, lines 22-58); **receiving a second digital image of the document, the digital image including a plurality of black and white pixels arranged in rows** (see column 6, lines 36-38); **locating at least two predefined portions of the second digital image** (see fig.2, 3 and 4); **calculating an area confidence level for each of the predefined portions of the second digital image as a function of a total number of black pixels located in the predefined portion relative to an expected number of black pixels for the predefined portion** (see fig.2 and 3, column 8, lines 46-52 and column 9, lines 22-58).

Moed discloses **calculating a text confidence level as a function of a total number of pixel groups relative to a total number of characters, wherein each**

pixel group comprises a set of touching black pixels (see column 4, lines 20-25, column 5, lines 57-62 and column 6, lines 15-20) **and each character comprises one or more pixel groups** (see column 4, lines 20-25 and column 5, lines 57-62); **calculating an image profile confidence level as a function of a black pixel distribution and a black pixel density** (see column 5, lines 9-11, 57-62, column 6, lines 15-20 and column 7, lines 34-42); **calculating a second overall image confidence level as a function of the area confidence level, the text confidence level** (see items 211 and 212, fig.2A, items 221 and 222, fig.2B, fig.3H and column 6, lines 15-20), **and the image profile confidence level** (see column 6, lines 15-20); **and storing the second digital image as a result of determining that the second overall image confidence level is greater than or equal to the threshold** value (see item 103, fig.1 and item 604, fig.6).

It would have been obvious to someone of the ordinary skill in the art at the time when the invention was made to use Moed's calculating a text confidence level as a function of a total number of pixel groups relative to a total number of characters, wherein each pixel group comprises a set of touching black pixels in Ott's receiving digital image of a document associated with a document type because it will allow to improve the system that automatically and accurately evaluate the quality of the document image , [Moed's, see column 1, lines 65-67].

Regarding claim 19, Ott discloses **the method of claim 18, wherein the second digital image is a result of one or more of (i) a modification of the document prior to receiving the second digital image** (see column 3, lines 18-30), **(ii) a modification**

of the scanning equipment (see column 3, lines 18-30), **or (iii) a modification to a scanned image prior to receiving** (see column 3, lines 18-30).

Regarding claim 20, Moed discloses **a method, comprising determining that a first overall confidence level of a first digital image of a document associated with a document type is less than a threshold value associated with the document type** (see column 5, lines 49-52); **calculating an image profile confidence level of the second digital image as a function of a black pixel distribution and a black pixel density** (see column 5, lines 9-11, 57-62 and column 6, lines 15-20); **identifying at least two text fields of the second digital image** (see items 212 and 214, fig.2A and items 222 and 224, fig.2B); **for each of the at least two text fields** (see items 212 and 214, fig.2A and items 222 and 224, fig.2B), **calculating a respective field confidence level as a function of the image profile confidence level, a character mass, broken characters, and a line area confidence level** (see items 212 and 214, fig.2A 224, fig.2B and column 6, lines 15-20); **setting a second overall image confidence level to the minimum of the at least two field confidence levels** (see column 6, lines 15-20); **and storing the second digital image as a result of determining the overall image confidence level is greater than or equal to a threshold value** (see item 103. fig.1 and item 604, fig.6 and column 5, lines 53-56 and column 6, lines 15-20).

Moed does not disclose **receiving a second digital image of the document, the digital image including a plurality of black and white pixels arranged in rows.** However, Ott discloses **receiving a second digital image of the**

document, the digital image including a plurality of black and white pixels arranged in rows (see column 6, lines 36-38).

Regarding claim 21, Ott discloses **the method of claim 20, wherein the second digital image is a result of one or more of (i) a modification of the document prior to receiving the second digital image** (see column 3, lines 18-30), **(ii) a modification of the scanning equipment** (see column 3, lines 18-30), **or (iii) a modification to a scanned image prior to receiving** (see column 3, lines 18-30).

Allowable Subject Matter

4. **Claim 8** is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The claim limitation, " **subtracting the total number of characters from the total number of pixel groups to produce a first quantity; dividing the first quantity by the total number characters to produce a second quantity; and subtracting the second quantity from 1 to produce a third quantity; if the third quantity is non-negative, setting the text confidence level equal to the third quantity; and if the third quantity is negative, setting the text confidence level equal to 0" in claim 8**. None of the prior arts disclose this claim invention.

Response to Arguments

5. Applicant's arguments filed on September 12, 2007 have been respectfully considered, but they are not persuasive. **Regarding 35 U.S.C 103 rejection of claims**, the applicant's argued that with references (Ott and Moed) do not disclose the claim

invention. The examiner disagrees because Ott discloses **an area confidence level** (see column 9, lines 22-30) and **calculating a an area confidence level for each of the predefined portions of the digital image as a function of a total number of black pixels located in the predefined portion relative to an expected number of black pixels for the predefined portion** (see fig.2 and 3, column 8, lines 46-52 and column 9, lines 22-58) **and calculating a text confidence level** (see fig.2 and column 9, lines 22-30) and **calculating an image profile confidence level** (see fig.2 and 3, column 9, lines 22-30).

Moed discloses **determining black level density** (see column 14, lines 12-20) and **image profile confidence** (see column 6, lines 15-20) and **storing the second digital image as a result of determining that the second overall image confidence level is greater than or equal to the threshold value** (see item 103, fig.1 and item 604, fig.6) and **as a function of a black pixel distribution and a the black pixel density, and selecting smaller of the standard deviation of black pixels in each row and the black pixel density** (see items 211 and 212, fig.2A, items 221 and 222, fig.2B , item 1102B, fig.11B and column 5, lines 9-11, 57-62, column 6, lines 15-20 and column 7, lines 34-42) and **calculating a respective field confidence level as a function of the image profile confidence level, a character mass** (see column 5, line 66 to column 6, lines 1-14)**, broken characters** (see column 5, lines 57-62), **and a line area confidence level** (see items 212 and 214, fig.2A 224, fig.2B and column 6, lines 15-20).

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Aklilu k. Woldemariam whose telephone number is 571-270-3247. The examiner can normally be reached on Monday-Thursday 6:30 a.m-5:00 p.m EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Samir Ahmed can be reached on 571-272-7413. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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A.W.
10/29/2007

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